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EDITORIAL.

TO OUR READERS.—It is with regret that we open our new volume without a word to our friends—as has been our habit for years past—in a few pages of editorial—this time sickness has prevented us from wishing welcome to our subscribers, to our kind contributors and our hard-working assistant editors—we hope to be able to resume our labors soon, and to do justice to all who have so far given us their assistance, but we feel that, waiting for this opportunity, we were in duty bound to offer our thanks for past favors, and our hopes for a continuation of their efforts in our behalf. The changes we have inaugurated in this number, will no doubt indicate the full appreciation of the editor for the kind support that the REVIEW has received at the hands of American veterinarians.

ORIGINAL ARTICLES.

A CLINICAL STUDY OF ODONTOMES.

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(A Paper read at the Annual Meeting of the Iowa State Veterinary Medical Association).

In Vol. XI. of the *Journal of Comparative Medicine and Surgery*, J. Bland Sutton, F.R.C.S. contributes a paper on "Odontomes," which for clearness and ability is probably the most valuable article in English veterinary literature on this much neglected subject, and I shall pre-suppose that each of you has given his contribution the careful study it so richly deserves.

Dr. Sutton defines odontomes as "*neoplasms composed of dental tissues, in varying proportions and different degrees of development, arising from tooth-germs, or teeth still in the process of growth.*"

He notes that three distinct parts are concerned in the formation of the teeth,—the enamel organ, the dentine papilla and the tooth-follicle; and uses these parts as his basis for classification and arranges odontomes in the following order:

A. Aberrations of the Enamel Organ.

Epithelial Odontomes.

B. Aberrations of the Follicle.

1. *Follicular Cysts.*
2. *Fibrous Odontomes.*
3. *Cementomata.*
4. *Compound Follicular Odontomes.*
- C. Aberrations of the Papilla.
Radicular Odontomes.
- D. Aberrations of the Whole Tooth-Germ.
Composite Odontomes.

Were the subject well studied, we would doubtless find representatives of each class and sub-class in most of our domestic animals, especially in the horse, which seems far more prone to odontomes than our other patients.

My observations have been confined wholly to the horse, and under the demands of every-day practice my means for the study of odontomes have not been in proportion to the material offered.

I have, however, had the good fortune to observe cases in each class and sub-class as outlined by Dr. Sutton, with the exception of *fibrous odontomes* and possibly also *epithelial odontomes*.

In studying Dr. Sutton's paper it will be observed that odontomes are very rare, in man and animals, in the incisor and canine teeth. It must be further remembered that the very slight development or total want in the horse, of the canines, makes aberrations in their growth very improbable indeed, and we thus have the molars as the only probable seat of odontomic aberrations, although a few exceptions to this rule occur.

Bearing in mind the very complex character of the molars of the horse, in the intricate arrangement of the various tooth substances—presenting, as they do, an intermediary stage of development between the compound teeth of the elephant or mastodon and the single tooth of most smaller lower animals and of man—it will be readily understood that the *epithelial odontomes* of Dr. Sutton are not likely to occur in the same distinct form in the horse as is seen in the simple teeth of man, where the entire crown of the tooth is covered with pure enamel.

In Fig. 1. we have, however, many of the characteristics of

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this form of odontome, which—as we will note later—seems to have consisted primarily of an aberration of the enamel organ.

As is apparently the case in man, so in the horse, it is found that a large proportion of odontomes belong to the second class of Dr. Sutton—Aberrations of the Follicle.

Under this, the first sub-class, or *Follicular Cysts*, form quite a large proportion of the total number of odontomes, and are frequently met with in practice, but consisting only of a delicate sac, filled with serum, no illustration by specimen is practicable.

The second sub-class, *Fibrous Odontomes*, I have not observed. This is probably due to the fact that, as appears to be the case in man, this aberration of development occurs for the most part in patients affected with rickets, a disease which has not been closely studied in the horse.

The third sub-class, *Cementomata*, is well illustrated by Figs. 4 and 5, which show large tumors of cementum.

The fourth sub-class is not so well represented in my collection, owing to carelessness in preserving specimens, for this form of odontome is quite common in practice and constitutes probably the most serious of all forms to the health of the animal. It is very well illustrated, however, in Figs. 6 and 7.

Under Class C, Aberrations of the Papilla, we find but one sub-class, *Radicular Odontomes*, which we find nicely illustrated in Figs. 8, 9, 10, 11, 12 and 13.

In class D we again find but one sub-class, *Composite Odontomes*, which is well illustrated in Fig. 14.

Although these classes and sub-classes may pass one into another by imperceptible gradations, yet the classification is of great importance and may prove in many instance of value as a guide to the veterinarian, by affording an intelligent basis for action.

Supposing that each of you has given Dr. Sutton's valuable paper the careful study it so richly deserves, and fully understand his classification as outlined above, we will now attempt to resume the subject at the point where he dropped it, and using this for a basis, and our clinical experience as

a frame-work, attempt to learn something of direct practical value to the veterinary practitioner regarding odontomes as seen in the horse.

In our experience in a horse-breeding district we find that a very large majority, we will venture to say fully 75 per cent, of the serious dental affections are due directly to aberrations of the tooth ^{erm}gum.

This proportion will probably not hold good in all sections of the country, and certainly not in large cities, for the most evident reason that these aberrations of the tooth ^{erm}gum naturally occur for the most part during the early stages of dental development and would consequently be seen far more often among young animals on the breeding farm, than among the mature work animals of large cities.

The editor of the *Journal of Comparative Medicine and Veterinary Archives*, in a foot-note to Dr. Sutton's paper, states that odontomes in the horse occur most frequently from the fifth to the seventh year, which differs widely from our experience, nearly all of our cases occurring in animals from six months to three years old.

Many of them failed to be presented for treatment at so early an age, but they usually had a very trustworthy history, dating back to the second or third year as the beginning of the disease.

We recall but one case, that of Chester B., Figs. 8, 9 and 10, in which the history, if at all obtainable, did not clearly indicate an early origin of the disease.

As a rule, the younger the patient, the more rapid and threatening the growth of the odontome.

We have met with no cases of odontomes of the canines, and so far as can now be remembered none of the temporary molars, but one of the incisors, all others being confined to the permanent pre-molars and to the molars.

The superior molars apparently suffer more often than the inferior, in the proportion of about four or five of the former to one of the latter. This apparent difference in susceptibility may not be true, since in many cases inferior odontomes frequently pursue a more benign course, and not inter-

fering with respiration, nor producing the dreaded nasal discharge, are neglected by the owner and the animal is not brought under the observation of the veterinarian.

While in many of the odontomes of the lower jaw the course is likely to be very benign, yet we have observed several fatalities from them, whereas we have seen none from those of the upper jaw, and in this respect our observations correspond exactly with those of Dr. Sutton, who records no fatalities in odontomes of superior teeth, but several from inferior odontomes.

The symptoms of odontomic changes in teeth necessarily vary greatly with the class, the tooth affected, size of odontome, stage of development, etc., etc.

In the lower jaw, where they usually take the form of radicular or compound follicular odontomes, the first noticeable symptom usually consists of a hard, sometimes painless, at other times quite sensitive, swelling, varying in size, well defined, and seen mostly toward the lower border of jaw where it is not covered by muscle. It may bulge mainly on either the outer or inner side, but is generally central, showing equally on both sides.

The growth may be quite gradual and the tumor painless unless suppuration supervene, to which there is usually a strong tendency, when the growth becomes more rapid and the tumor painful. The tooth may now also become sensitive, the animal evincing pain when the crown is manipulated, and especially in mastication. Two natural modes of relief present themselves, either or both of which may be called into operation. The more direct and effectual is by the pus forcing an exit through the thin, bony plate of the maxilla, at or near the affected fang, frequently on the external, more often on the internal side. The actual character of the disease is now readily recognizable by passing a metallic probe through the fistula, until it comes in contact with the hard, rough surface of the diseased tooth tissue. The swelling may then subside, and the animal remain apparently well—except the small fistula, which usually remains constantly open, and from which a small quantity of thick, fetid pus

slowly exudes and may so continue for several years, the crown of the tooth presenting no marked abnormality.

The second, and less effectual mode of relief, consists of the burrowing of the pus up along the side of the tooth, in one of the lateral grooves, finally finding exit into the mouth. This may afford some relief, but usually only of a temporary character, as it opens up a new source of danger by permitting food, during mastication, to pass down along the tooth into the alveolus and the original pus cavity, where, fermenting and decaying, it acts as a very dangerous irritant, resulting in an increase in the size of the opening about the tooth and a very rapid and serious increase in the size of the pus cavity, which may now attain a capacity of one to two pints, with bony walls one inch or more thick, the cavity lined usually with a smooth pyogenic membrane, and filled with irregular masses of detached dental tissue, sometimes pieces of detached bone, and nearly always a large quantity of pus, mixed with decaying food; presenting altogether the most repulsive, fetid mass possible.

In this stage, marked signs of serious constitutional disturbance rapidly supervene, the coat is staring, the animal feverish, extremely debilitated and emaciated, the mouth very offensive, and unless promptly relieved by surgical interference, will probably end in the death of the animal. We remember well two fatalities of this kind; both in the inferior maxilla of high-grade, two-year-old draft fillies, and both were lost through an error in diagnosis by the attending veterinarian.

The cases not coming under our care we failed to observe the animals either immediately prior or subsequent to death, so that the immediate cause of death can not be stated. Dr. Sutton, in his paper previously quoted, suggests septic pneumonia, from, we would infer, inhalation of pus, as the probable cause of death; but, as previously noted, all his fatalities, as well as ours, occurred in cases where the lower jaw was affected, when we should naturally expect that suppurating odontomes of the upper jaw, with escape of septic matter into the nasal passages, would be more likely to be followed by death from septic pneumonia.

It seems more likely that the want of a depending exit for the pus in the lower jaw in these cases permits the contents of the cavity to become far more virulent than in the upper jaw, and finally escaping into the mouth, causes septic infection, rather by ingestion, or absorption through wounds of the affected parts, than by inhalation.

Odontomes in connection with the superior molars are more common than with the inferior, and present a greater variety in character and symptoms.

In very young animals, follicular cysts and composite odontomes predominate.

Small follicular cysts are quite common in connection with the superior permanent pre-molars in colts aged one to three years. They appear, unless complicated by suppuration, as sharply defined, painless, hemispherical bony eminences, over the fang of the affected tooth. They are usually slow in growth, attaining their maximum size in from two to four months, when they may remain stationary for some months, and then imperceptibly recede; especially if the shedding of the temporary crown, or its surgical removal, lessens the resistance to the eruption of the permanent crown.

If this resistance is not promptly removed the tumor may remain stationary, although the tooth may erupt later, for several years; but usually, unless suppuration or other complications supervene, when the animal reaches adult age, the enlargement slowly recedes and finally disappears.

Follicular cysts of the third pre-molar, and all the molars, may, instead of causing a marked swelling of the facial region, develop and extend into the sinuses of the face, and, continuing their growth, either extend through the foramen of communication between the sinuses and nasal passages, into the latter, or, by pressing the internal wall of the sinus inwards, narrow or occlude the nasal passages, and thus produce well marked dyspnoea. The cyst, on exploration, is usually found to have a thin, tough, fibrous wall, containing a thin, reddish or reddish-yellow fluid. Unlike in cases of the filling of the sinuses with pus, these cysts do not destroy their resonance on percussion, so that in some cases the affected side can only

be determined by alternately closing each nostril, or by exploring the sinuses with a gimlet. In other cases, the contents may be thicker, of a gelatinoid consistency, and the color may vary from pale yellow to reddish-brown. If neglected, they may suppurate.

Multilocular cysts, compound follicular cysts, radicular and composite odontomes are all prone to early suppuration.

The first evidence of their existence in the pre-molars, and first and second molars, is usually more or less bulging of the facial bones over the affected part, but the position of the last molar is such that no external swelling can well occur. Then follows, in case of considerable cystic growth, dyspnoea, without marked dullness by percussion over the affected part. Suppuration usually supervenes early and in the anterior molars, whose fangs lie in contact with the external bony wall, may find exit externally, leaving a permanent fistulous opening, through which the hard, rough tooth may readily be recognized with a silver probe.

Frequently also, the pus finds exit alongside the affected tooth into the mouth. This separation between the tooth and gums can be readily felt by the fingers in many cases.

At the same time there is a further natural tendency to recovery from the disease, by the splitting up, loosening, and dropping out, of the tooth, followed by a free exit of detached denticles, pus, debris, etc., which may, and doubtless is sometimes followed by tardy and fairly complete recovery.

More often however, this splitting up of the tooth only adds to the gravity of the case. In this splitting process it is quite likely that food, or detached pieces of tooth, will become so impacted as to force a part of the tooth out of its line, where, with its rough, jagged edges, it causes serious laceration of the lips or tongue, or by the irritating presence of the detached pieces, may cause more or less extensive ulceration and destruction to the bony palate, thus establishing a permanent oro-nasal communication, through which food will be pushed into the nasal cavities during mastication, as in Fig. 16.

Another untoward result sometimes brought about through the longitudinal splitting of mal-developed teeth is

well illustrated by a case occurring in our practice of a four year mare in which there was an aberration in the development in the fourth superior molar, resulting in the splitting of the tooth in two halves, the inner half remaining in situ, while the outer was pressed upwards and inwards by the gradual impaction of food, until the fang of the detached half rested in the nasal passage, against the septum nasi, while the crown rested against the fang of the persistent inner half.

Usually, however, the pus from odontomes finds exit either into the facial sinuses or directly into the nasal passages, giving rise to various-colored fetid nasal discharges.

If the discharge take place directly into the nasal passage, dyspnoea rarely occurs, but when into the sinuses and they become filled with dry, inspissated pus, which may press their internal walls inwardly, encroaching on the nasal passage, marked dyspnoea soon becomes evident. When this filling of sinuses becomes so great as to press their internal walls over completely against the septum, so as to effectually stop any overflow of pus from the sinuses through the foramen into the nasal passages, as is sometimes the case, the dyspnoea becomes at once urgent and serious, as the further accumulation of pus may push the septum nasi over well against the outer wall of the opposite nostril.

In other cases again it may happen that in addition to pus, detached, irregular, sharp masses of denticles, like those in Fig. 7, may pass into the nostril and slowly gravitate downwards, consuming days, perhaps weeks, in gaining an exit, irritating and lacerating the nasal membrane, causing extensive ulcerations, which when healed, leave irregular, large white cicatrices which can be very readily mistaken for glanders, especially when accompanied by an abundant fetid discharge and considerable tumefaction of the sub-maxillary lymphatics.

In a large proportion of cases of suppurating odontomes, there is a well-marked, hard, sometimes nodular and painful tumefaction of the submaxillary glands.

Suppurating odontomes of the sixth, perhaps also of the fifth molar, when the exit of pus chances to occur inwardly,

can only be surmised by the fetor of the breath and nasal discharge. The causes which lead to suppuration of odontomes are probably various, but may as a rule be referred to one of two conditions. First, when accompanied by considerable cystic formation, the rupture of the cyst will almost inevitably lead to suppuration.

The second and undoubtedly more fertile and serious cause of suppuration lies in the imperfect development of the tooth crown, by which there is an open communication extending from the crown up through the central portion of the tooth, between the inverted layers of enamel up to the fang, and into the mal-developed tooth follicle, through which food and other adventitious matter may readily pass and incite the suppurative process. By many these openings are regarded as the result of caries of the tooth, but a closer examination of a series of cases will develop the fact that essential caries of the molars of horses is *very* rare, and that this defect is primarily in the tooth germ, and that the inverted layer of enamel is not continuous at the bottom, but open, and that the cementous which should bind the enamel together throughout the length of the tooth is wanting, leaving a free opening to the tooth germ. This is well illustrated in Fig 1*b*, where the fifth molar, as is shown by the wire passing through its center, is traversed from crown to follicle by an opening which was ready formed before erupting. In the same Fig. 1*a* is shown the recently erupted fourth molar in the same condition. This same state is also well shown in Figs. 2, 3, and 6, and to a still greater extent, resulting in the longitudinal splitting of the tooth in Fig. 12 and 15, the series serving well to demonstrate that the opening is primary and if caries be found present, it is secondary.

The treatment of odontomes can probably be best outlined by a series of cases occurring in practice and representing fairly well the various classes into which they have been divided.

As previously noted, the first class aberrations of the enamel organ is most nearly represented by Fig. 1.

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draft gelding, brought to us for operation when about twenty-six months old, the owner relating that some six months previously the colt had suffered from "distemper" (strangles) from which he had failed to fully recover, but rather growing worse, the owner concluded to seek assistance. The general health, condition and appetite of the animal seemed perfect, and no difficulty could be observed in his eating. There was great dyspnoea, and an enormous bulging of the left side of the face, extending entirely over the region occupied by the facial sinuses, from the eye to the region of the second pre-molar, from the median line of the head to the masseter muscle, the bulging reaching at its central part an elevation of fully three inches beyond the natural facial line. The swollen part was somewhat painful, and dull on percussion; the sub-maxillary lymphatics of the affected side were considerably tumefied.

The nasal discharge present was only such as would result from the extreme dyspnoea. Accepting the owner's history of prior strangles, and diagnosing suppuration of the sinuses as a result, a free opening was made into the lower part of the frontal sinus, when a large amount, probably two pints, of fetid greenish serous fluid, mixed with pus, escaped and the sinus was dressed antiseptically for two or three days, when, although the dyspnoea had to some extent subsided, the improvement was unsatisfactory. The pressure of pus and fluid had destroyed the inter-sinusal walls, converting all into one, and extending them beyond their usual boundaries.

With a view to perfecting the drainage, the opening into the frontal sinus was widened and then extended downwards toward the nose some four inches, until the antero-inferior limit of the pus-containing cavity had been reached. This large opening, parallel to the septum nasi, afforded a good opportunity for examining every part of the frontal sinus, and especially with regard to the failure of the pus to gain exit through the nasal passage. It was found that at the point of communication between the nasal passage and the sinuses, the walls between the two had been pushed over by the contents of the sinuses until they were pressed firmly against the septum nasi, completely stopping any overflow into the nostrils.

Knowing full well by experience the invaluable advantage in diseases of the sinuses to be derived from a *free, dependent nasal* exit for morbid products, one finger was passed through the foramen of communication between sinuses and nasal cavities and then forced down between the septum nasi and the displaced internal wall of sinuses. A probe-pointed bistoury was then passed along the finger and the displaced wall divided as low down toward the nostril as practicable. The bistoury then turned and including a piece of the wall about three-quarters of an inch wide, the incision was carried back in a parallel line to the starting-point, thus detaching and removing enough of the wall to ensure a free opening, which was made more effectual by pressing a good sized antiseptic cotton tampon between the septum nasi and the edge of the incised wall at its lowest part. This tampon was removed daily for two or three days.

This, however, failed to drain the maxillary sinus at its inferior part, and accordingly a second opening was made over the fang of the first molar (fourth tooth) at the zygomatic ridge, and on cutting through the maxillary bone, instead of finding a considerable intervening sinus, we came directly upon a mass of dental tissue and the real nature of the affection was now revealed, and upon questioning the owner regarding his history of strangles it was found that it was without other foundation than purulent discharge from the nostril of the affected side and some degree of dyspnœa.

The opening through the maxillary bone was enlarged and the odontome well bared, a steel punch placed against it at right angles, when a few sharp blows with a mallet shattered the tumor, which was now found to consist of several cysts with walls of dental tissue.

Some of the cysts were three-quarters of an inch in diameter and contained a reddish-brown semi-transparent fluid. Portions of these cyst walls are shown in Fig. 1 *c, d, e* and *f*, and are composed apparently of dentine and enamel.

After the tumor had been well comminuted and the pieces well removed, leaving only about one-and-one-half inches of the crown, the latter was driven into the mouth by means of punch and mallet and removed.

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This fourth tooth out of the way, it was seen that the fifth was similarly affected, and its fang was comminuted in the same manner, until proper opportunity was given to apply the punch at an angle which would permit our driving it into the mouth as with the fourth.

Examination of the teeth (Fig. 1. *a* and *b*) shows quite clearly that the original departure from health was in the development of the tooth follicle itself, by which an opening was left at the bottom of the central inversion of enamel and the secretion of cementum to bind the two inverted layers together is wholly wanting. In these teeth, especially in the unerupted fifth, no evidence of caries is present, but the inverted layers of enamel are bare and the space between them wholly devoid of cementum. Figs. 2, 3, 6, 12 and 15 only serve to emphasize the fact that caries as a primary affection of the molars of the horse, is *very rare*, while aberrations in the tooth follicle, resulting in a want of continuity of the inverted fold of enamel, and a want of cementum between the enamel plates, is common, and leads to early suppuration, later to caries and longitudinal splitting of the tooth, and not, as Hinebauch states (Veterinary Dental Surgery, p. 78). "Caries commencing" "at the crown or table, is due to a portion of the dentine losing its vitality" for, as he shows very conclusively in the same vol., (p. 73, Figs. 18, 19, and 20,) the openings in the crowns are *not in a part where dentine exists*, but between the inverted plates of enamel where cementum has failed to form.

After the removal of these teeth, the sinuses were thoroughly washed with a four per cent solution of carbolic acid, after which the sinus and alveoli were well filled with pledges of cotton batting, saturated with carbolized oil (1-16) with the surface thickly sprinkled with iodoform. This dressing was renewed daily, the dyspnoea rapidly disappeared, healthy granulations promptly appeared in every part, the bulging of the face receded, the openings in frontal and maxillary bones and in alveoli gradually closed, so that within a fortnight after the removal of the teeth, the animal left the infirmary, and continued to improve rapidly, making a good recovery, with but slight blemish, in about twelve weeks.

Following the classification of Dr. Sutton, under class B we have, first; Follicular Cysts, of which in practice we meet with two common varieties.

One of these, the more common, and forming a connecting link between the preceding class and the true follicular cysts, are the small follicular cysts in connection with the permanent pre-molars, causing well-defined hemispherical tumors of the superior maxillary bone over or slightly above the normal position of the tooth-fangs. They are observed generally, if not always, in animals from several months to two years old.

Unless suppuration supervene there is little call for treatment, except on account of the blemish, which can in many cases be modified largely by prompt removal of the deciduous crown, if still wished, in order to remove the resistance to eruption of the permanent tooth. Further modification of the blemish can only be effected by sacrificing the tooth and cutting away a part or all of the enlargement. In many cases, owing to aberrations in the formation of the tooth, as I have already noted above, resulting in a communication between the crown and fang, existing at time of eruption between the folds of involuted enamel, leads to suppuration of the cyst, which may find exit externally through the maxillary bone, or internally, alongside the tooth into the mouth, or into the nostril.

Figs. 2 and 3 represent suppurating follicular cystic odontomes of the second pre-molars of this class, from two-year-old colts.

Suppuration of the cyst entails the destruction of the tooth in these cases, and it should be removed promptly and care taken to reduce the blemish to a minimum by removing at some time the greater part of the protruding maxillary bone. Of all odontomes these yield the most promptly and satisfactorily to treatment.

The other variety of follicular cysts, and in fact the typical ones, occur in relation to the molars, and extend into the nasal sinuses and passages in the form of thin-walled bladder-like cysts, and occur, so far as we have observed, in colts from a few months to a year and a half old.

The contents of the cysts vary from a thin limpid fluid to a gelatinoid mass and in color from light, pale yellow or red to a deep reddish-brown. They should be treated promptly, by a free depending opening, and after the contents of the cyst have escaped, the walls should be carefully removed, and if the fang of the tooth is not exposed, it should be left undisturbed, and after-treatment carried out as indicated above.

Cementoma, when confined to the crown, as in Fig. 5, merely calls for extraction in the ordinary manner.

The case represented in Fig. 4, however, offers some difficulties. The patient was a four-year-old mare, affected since her second year, and the tooth, the third superior pre-molar, was removed by means of heavy forceps, but the animal failing to recover, she was brought to us for treatment, when we trephined into the alveolar cavity and removed a large amount of detached cementum, carious bone, decaying food etc., and discovered that in drawing the tooth, the bony plate had been badly damaged, leaving a large hole in it, as in Fig. 16, which failed to heal, and through which food escaped into the nostril during mastication, rendering the animal quite offensive and well nigh worthless.

The last or fourth sub-class under Class C, that of Compound Follicular Odontomes, is through neglect, only incompletely illustrated in my collection by Figs. 6 and 7; the first representing the body of the tooth, the second irregular masses of dentine, enamel and cementum, detached through suppuration or found attached to the walls of the abscess.

The patient was a well developed high grade draft mare, aged four years, affected since about two years old. She showed at date of presentation for operation, an enormous enlargement of the left inferior maxilla over the region of the fourth molar, with an external fistula through which a fetid pus escaped.

Over the region of the opposing fourth superior molar another swelling of great size was present, while from the nostril there was a free escape of a fetid, purulent discharge.

The entire number of both superior and inferior molars of

the left side—owing doubtless to pain induced by pressure on the two affected molars, and consequent mastication of food on the right side only—had become worn wedge-shaped, so that the superior passed down outside of the inferior teeth, the two rows closing together like shears, the beveled sides coming in contact instead of the tables. Beyond this deformity, which was uniform with all the left teeth, no abnormality could be detected by an oral examination, and hence no means were so offered distinguishing the diseased from the healthy teeth.

Free openings were made over the region of both the fourth inferior and superior left molars, and the affected teeth, which were now plainly recognizable by the touch, were driven out with punch and mallet, the accumulated pus and detached dental tissue were carefully removed, the pus cavities thoroughly cleansed and dressed antiseptically. The recovery from the operation on the inferior maxilla was prompt and complete, while that of the superior was tardy, the alveolus having been seriously injured in driving through it the greatly enlarged irregular fang of the affected tooth (Fig. 6) which left an opening requiring several months for healing.

The deformity of the remaining teeth was so great that it could not be overcome, but the recovery was sufficiently complete that the mare has since maintained good health and flesh while doing ordinary farm work and breeding, while the external blemish is quite insignificant.

Under class C, Aberrations of the Papilla, the only subclass, Radicular Odontomes, is well illustrated in Figs 8, 9, 10, 12 and 13, three of which offer something of special interest.

Fig. 13a represents the fourth superior molar from an aged pony whose history could not be traced, but had doubtless had a fistulous opening over the tooth-fang for several years. Not fully realizing the extent of the disease, a free opening was made to the bottom of the fistula, and the rough, carious portions as carefully removed as possible; but this proved of no avail and later the tooth was extracted by trephining and

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punching, after which the opening left failed to heal, leaving a permanent fistula from the face to the mouth, through which food was forced during mastication. The age of the animal, debility from bad care, and imperfect after-treatment by the owner were probably to some extent responsible for the bad result, but doubtless the main factor is to be found in the excessive enlargement of the fang; tearing in its forced extraction, entirely too large an opening through the alveolus.

(To be continued.)

ON THE HORSE'S EYE.

By Dr. CLAUDE D. MORRIS, Bath, N. Y.

(A Paper read before the New York State Veterinary Society).

The diseases of the eye that are met with in ordinary practice arise either from dietetic influences, such as improper food, or a too great allowance of good food, poor ventilation, overwork, dark stables, and injuries occasioned in various ways.

The symptoms which are manifest by improper food and care, are first, a dullness of the transparent structures, and a slight congested condition of the conjunctiva. The temperature of the body will be slightly elevated, and occasionally the bowels will be constipated. Urine of a thin, milky color. These cases are simple and easily controlled. I find that a moderate dose of physic, such as castor oil, from twelve to sixteen ounces, according to the size of the animal, will act freely enough. The subsequent treatment consists of careful feeding, together with a weak solution of boracic acid dropped in the eyes twice each day for three or four days. Injuries which are frequent, I find best treated as a whole by the use of cold, soothing applications, allowing the animal sufficient rest. If the eye or any of the appendages are cut and lacerated, detach all semi-attached portions, stitching up all parts where the incision will admit of bringing the divided edges together, applying a sponge saturated in ice water,

frequently changed. I have had a number of cases under my care that cannot be classed under the head of staphylomatis conditions. Yet to the casual observer they might appear as such enlargements on the cornea. They seem to partake more of the nature of granular oma or fibroma, arising from some constitutional disturbance. They are best treated (if the circumstances will warrant) by excision, but more particularly with caustics followed by a moderate solution of zinc sulphate and belladonna. The symptoms in all these cases that are first noticeable by the care-tender, is that the animal keeps the eye closed a portion of the time, tears also flowing over the cheek, and upon examination, he invariably says that the animal has a piece of chaff in its eye.

Hyperæmia of the iris is of far more frequent occurrence than is generally supposed. Nor can we be surprised at this, when we remember the close connection which exists between the iris and the cornea, on one hand, and the iris ciliary body and choroid, on the other. Indeed, we may regard the iris as the anterior termination of the ciliary body and choroid, the whole forming in reality one tissue, the uveal tract. Hence the frequency with which inflammation of the iris extends to the ciliary body and choroid, and vice versa. In a hyperæmic condition of the iris, we find that there is more or less marked subconjunctival injection; that the pupil is somewhat contracted and sluggish, not reacting freely on the application of atropine, and that the iris is discolored, which is due to the increased vascularity imparting a reddish tint to the natural color of the iris. In iritis there are superadded to the symptoms of hyperæmia of the iris those of an effusive or plastic lymph at the edge of the pupil, or on the surface and into the stroma of the iris.

Amongst the earliest symptoms of iritis are, injection, ciliary contraction, sluggishness of the pupil, and a discolored, dull appearance of the iris. But a far more constant symptom is the subconjunctival vascularity, giving rise to a more or less broad, rosy zone or parallel vessels, closely ranged round the cornea. This zone is generally of a bright rose color, and consists chiefly of small arterial twigs.

Amongst the causes of iritis, a very frequent one is exposure to sudden changes of temperature, cold draughts of air, rain, wind, etc.

Iritis is also of traumatic origin, being caused by mechanical or chemical injuries, which either affect the iris directly or secondarily. These foreign bodies may remain lodged for some time in the conjunctiva cornea anterior chamber, or in the deep tissues of the eye, and then set up iritis.

A favorable or unfavorable termination of iritis depends largely upon the severity and the cause of the inflammation. If the patient can be seen in the early stage of the disease, before any adhesions have taken place between the edge of the pupil and the capsule of the lens, or while these are yet so slight and brittle as to be readily broken down by the energetic use of atropine, then the result may be looked upon as favorable. The treatment consists in carefully guarding against the injurious influences of bright light and sudden changes of temperature, as well as cold and wet. The end greatly to be desired in the treatment of iritis is to obtain wide dilatation of the pupil as soon as possible, and hence a strong solution of atropine should be, at once, energetically applied to the eye. The effect of atropine in these cases is three-fold. Wide dilatation of the pupil is produced, and the iris is, therefore, removed from the contact with the anterior capsule of the lens, so that no adhesions can be formed between them at the edge of the pupil, or on the posterior surface of the lens. Further rest will be afforded to the inflamed muscular tissue of the iris by a wide dilation of the pupil; also the tension of the eye will be diminished and the intra-ocular circulation relieved, which will diminish the state of congestion of the iris and ciliary body.

If by a too strong solution of atropine, or the eye becomes irritated by using a moderate solution, and granulations begin to form on the lids, accompanied by swelling of the conjunctiva, this is best overcome by using a solution of alum, zinc or nitrate of silver, gr. ii, H_2O \mathfrak{z} i, or should vesicles form, that condition can also be overcome by the use of borax, 10 grains to the ounce.

Ophthalmia, generally speaking, is a constitutional disease affecting the organ of vision, having its origin in the deep structures of the eye; and, as it progresses, works externally, involving the entire organ. The varieties of this disease that are met with in veterinary practice, are catarrhal, purulent and periodic. Catarrhal ophthalmia is a sporadic disease, or, we may say, it is one of the manifestations accompanying a sporadic disease, arising from a variety of causes, such as alternations of temperature, ill-ventilated and dark stables, exposure to wet and cold, and, in a young animal, a strong predisposition to colds exists during the process of changing the coat. The symptoms that are present when the veterinarian's attention is called, are generally, debility, rough, staring coat, the temperature slightly elevated, a discharge from the nose and eyes, more or less opacity of all the transparent structures of the eye, and as the owner will frequently remark, the animal's eyes will seem to clear up and look bright, and then in two or three days will look hazy and dull again. The conjunctiva is more or less congested, and in the more aggravated cases we find on everting the eyelids that the conjunctiva will be red, vascular and swollen, so that the meibomian glands are nearly or entirely hidden. The discharge varies in quantity and quality according to the stage and intensity of the affection. In the early stages there is generally only an increased secretion of tears, but the discharge soon becomes more opaque and stringy, and of a yellowish-red tint, consisting chiefly of albumen and broken-down epithelial cells. The treatment must vary according to the severity of the disease.

If the eye is very irritable, and there is much lachrymation accompanied by conjunctival injection, astringents should be carefully avoided, as they tend to increase the irritability. Such cases should be treated with soothing applications (such as atropine and warm fomentations), and in the course of three or four days bathe the eyes with a moderate solution of boracic acid.

Purulent ophthalmia is a subsequent termination of catarrhal ophthalmia, if the former be not checked and is

allowed to run its course. The symptoms in this condition are but an aggregation of the former more pronounced. Lachrymation and intolerance to light increases, the lids become very swollen, so that the upper hangs down in a thick heavy fold. They are red, glistening, and oedematous, and if pressed upon are very tender. The conjunctiva becomes vascular and swollen, and patches of effused blood are noticed covering more or less of its surface. They often bleed freely on the slightest touch, as their epithelial covering is very thin and easily shed. As the disease advances the discharge increases in quantity, becomes more opaque, thick and creamy; and on account of its admixture with blood, frequently assumes a reddish-yellow tint. The chief danger in purulent ophthalmia is the implication of the cornea. Any cloudiness of the latter must necessarily be looked upon as an untoward symptom. Sometimes there is a serious infiltration into the cornea, which may remain confined to the periphery. If this opacity is considerable and extends over the center of the cornea, the sight may be greatly impaired. Generally the infiltration changes into an ulcer, which may, in favorable cases, remain superficial, and as such may leave very little or no opacity of the cornea. The greatest attention must be paid to local treatment. The eyes should be frequently cleansed of the discharge. A moderate solution of nitrate of silver or sulphate of zinc should be applied. Ice compressed may also be applied to the eyelids, as it will often cut short the attack. If the temperature of the lids is but moderately increased, it is only necessary to employ cold compresses for an hour or two after the application of caustics, for we thus assist the astringent action of the caustic upon the blood vessels, and also moderate the reaction produced by it. The after-treatment consists of a saturated solution of borax, alternated with sulphate of copper.

Periodic ophthalmia is the disease of the eyes in the lower animals that has baffled the skill of such men as Williams, Dick, Percivall and Coleman. And they lay it down in their works as one in which they do not feel justified in suggesting any line of treatment that will prove successful. They all agree

that the disease is a slow, remittent process, having its origin in the posterior structure of the eye, working anteriorly and terminating in cataract. I have seen but a few cases of this form of ophthalmia, and have not treated it to any extent. I have, however, palliated for a time the symptoms that attracted the owner, and he would return in two or three months and would say, "Give me some more of that eye medicine, and when I get his eyes cured this time I will dispose of him." The first noticeable symptoms are tears flowing over the cheek, and if the animal is in a bright light, there is always more or less blinking, indicating an utter intolerance to light. The cornea and lens are quite opaque, and if the case is one of some weeks, there will be a wrinkled or furrowed appearance of the upper lid and eyebrow. The attack generally comes on suddenly without any appreciable cause, and if in one eye, it seems smaller than its fellow and is drawn back into the orbit, as it were, as far as possible from the light which, from its sensitiveness, it cannot bear. Percivall, describing the opacity of the cornea and anterior chamber, says: "At the beginning the anterior chamber preserves its pellucidity so that the iris and pupil can be seen, the latter contracted, the former unchanged in color. In the course of two or three days, sometimes earlier, the chamber becomes obscure by a dingy white or amber-colored deposit floating within it, through which the pupil is hardly discernable. The opacity of the cornea proceeds from its circumference to its center, until at last the whole of the surface becomes of a dull greyish hue, and in some cases blood vessels are seen ramifying over it. When the dullness is great the iris is invisible, but when it can be seen, it will be found that the pupil is narrow and contracted."

Some writers are inclined to give preference to some one particular structure of the eye as the seat of the disease. Williams is of the opinion that it may be considered as involving the entire organ in its incipency. Williams describes the remaining symptoms as those of "turbidity of the aqueous humor, and the corpora nigra lose their jetty blackness. The pupil becomes more and more contracted, the conjunctiva intensely reddened, and in some cases the vessels crowd around the

margins of the cornea, across which numbers of them shoot in irregular lines, and occasionally pus forms in the anterior chamber, and in rare instances the inflammation may terminate in suppuration of the entire coats and consequent disruption of their contents, but the common termination is cataract." Professor Coleman, from very extensive observations made at a time when this disease was exceedingly prevalent, arrived at the conclusion that the affection resulted from the same conditions as those which engendered glanders and farcy, namely, contaminated atmosphere, resulting from ill-paved, ill-drained, unventilated stables. And the observations I have made lead me to the same conclusion, and all cases that I have examined have been amongst animals housed in underground stables, that were damp, illy-ventilated and dark. Arriving at but one conclusion and result of this disease, we may consider briefly its ultimatum.

By the general term "cataract" is understood an opacity of the crystalline lens which may be capsular or lenticular, and it may involve with the lens and its tunics, which would then be termed "capsulo-lenticular." It is considered by all writers and admitted that the etiology of cataract is still shrouded in much obscurity and doubt. However, it would appear most probable that the principle of the loss of transparency of the lens is to be sought in an impairment of its nutrition, due to some morbid alteration in the vitreous humor and in inflammatory changes within the lens itself, primarily augmented by a morbid condition of the blood. Cataract may arise from a variety of causes. It is not unfrequently the sequel of disease, traumatic influences, etc. A fully formed matured cataract may be at once recognized even with the naked eye. The pupil is no longer clear, but it is occupied by a whitish opalescent body which lies close behind it, and it may be seen on any part of the anterior surface of the lens. Capsular cataract is found most frequently in those opacities of the lens which are complicated with iritis, and Murray strongly insists, "that here great proliferations of the intracapsular cells occur, and may subsequently undergo fatty degeneration and finally disappear and be replaced by calcareous deposits, the chalky de-

generation of the lens not unfrequently taking its start from the capsule."

Lenticular cataract is the one that the veterinarian sees as a rule. His attention will not be called until the case is so well advanced that the entire lens is more or less implicated. Partial, if not complete loss of vision in the eye affected, will be one of the main symptoms which will confront him, as complete cataract can be produced in a few days or weeks, according to the influences which aggravate and produce the disease. Treatment is not always expedient, and much more is it unsuccessful. The only specific is the knife. And that also is governed by circumstances, followed by a line of treatment which is not always successful. Finally, in the treatment of diseases incident to horses' eyes, the main specific to have at hand is common sense and a little ingenuity. Be able to cope with the situation as you find it. Be careful about your diagnosis. Give no opinion until you are sure that you are right, and especially render no opinion if subsequent events can prove that you were wrong.

ERGOTISM.

By DR. JNO. A. BELL, Watertown, N. Y.

(A Paper read before the New York State Veterinary Society.)

I am sorry to say that since we last met business, professional and otherwise, has so occupied my time that it has been impossible for me to give thought and attention sufficient to prepare a paper suitable to be read before this Society. However, as my name has been put down for something, I concluded it would not do to back down entirely and, having had quite a number of cases among cattle of what I diagnosed as ergotism, within the last few years, and never having seen a case previous to that time, to my knowledge, I concluded to write a few rambling remarks on this subject. Although veterinary literature on this particular subject seems to be quite limited, at least so far as I have been able to learn, I have endeavored to give you some practical statements from my

own experience, as well as the investigations of others, which may develop some ideas that will be useful, and gain new information which will be of benefit to some members of this Society, including myself.

But before proceeding with a description of the cases referred to, I have concluded to say a few words on the subject of ergot and smut of grasses, by which means our patients nearly always take the poison into their systems.

The cause that is most likely to produce the diseased condition of the grasses is muggy, damp weather; and undrained soils favor the development of these ergot and spores of other fungi.

Just here I wish to call attention to an article on this subject written by Prof. George Vasey in the Report for 1885 of the Department of Agriculture, as I find nothing of a more recent date. His description is as follows:

"I made an investigation in May and June, and found the affected plants somewhat smaller than those that were not diseased. Otherwise they presented no unusual appearance when carelessly handled. On a careful examination, however, one or more of the leaves were found to be marked by lead-colored, slightly thickened lines about one sixty-fourth of an inch wide and one-sixteenth to one-fourth of an inch long, running lengthwise of the leaf. Sometimes but a single line or series of lines was to be found on a leaf, but usually there were several, in many instances the space between the two veins of the leaf being occupied by these discolorations, which extended from the base nearly to the apex. When one of these leaves was cut or torn across, it was found that each of the lead-colored lines referred to corresponded to a black, dirty mass occupying the center of the leaf and merely covered by the epidermis at the top and bottom. Shortly afterwards the epidermis ruptured along the dark lines, one side usually tearing before the other, and so exposed the smutty substance, which was shaken from the cavities and dispersed by the wind, under the action of which the leaves were soon reduced to brown shreds, by which the diseased plants could be readily distinguished, even from a distance."

He also says: "As far as I know, the smut of timothy has never been examined chemically, nor have experiments been instituted to determine its action on the animal system. But until it has been shown to be harmless it will be safe to regard it with suspicion, and to avoid pasturing grass or feeding hay that is known to contain much of it."

Dr. Salmon, in reply to an inquiry from E. A. Prior, of Ohio, in 1887, said:

"I have never seen true smut in timothy, but have frequently seen it affected with ergot." Of course, I don't feel competent to present the scientific side of this question or to argue it in any form. I simply give you my opinion, based on my observations and experience in the cases I have had. In the first place, the general appearance of the grasses, including timothy and others, corresponded with the descriptions I had read of smut. Second, the weather during the season had been muggy and very wet, these being the conditions described by the authorities as favorable to the development of smut, ergot and other fungi.

This smut appears to have nearly all the medicinal properties of ergot. Yet I have never known in my practice a case of abortion from smut, although it is spoken of in many instances as having produced such an effect.

Nothing definite is known respecting the morbid anatomy of ergotism. It derives its name from the fact that it is the result of the ingestion of ergot. Beyond its effect as an irritant poison, the specific influence of ergot is exerted upon the organs of circulation, upon the central nervous system, and upon the uterus. Ergot produces a remarkable slowing of the cardiac rhythm, the arteries become contracted, with diminution or even disappearance of their channel, or formation of thrombi, the blood pressure falls and the veins become dilated and distended.

The most recent and consistent theory respecting these phenomena is, not that the muscular coats of the arteries actively contract, but that the venous walls are primarily relaxed. The veins are thus overfilled and the arteries drained of blood. The blood pressure is lowered and the heart, being insufficiently fed, contracts feebly and slowly.

Certain of the spinal centers, both motor and sensory, are first stimulated and afterwards paralyzed by ergot, directly, according to some authorities, and indirectly by others. The unquestionable action of ergot upon the uterus is explained by some authorities as due to stimulation of the center of the uterus in the cord. Others assert that ergot acts upon the muscular fibers of the organ, either directly or indirectly, through the blood supply.

Whatever may be the value of the several explanations of the action of ergot, the facts connected with it suffice to account for the specific phenomena of ergotism.

The small, feeble and infrequent pulse is due to an interference with the circulation; while the painful spasm, as well as the formications and other sensory disturbances are the direct result of the action of the poison upon the cord. The gangrene may also be partly due to the latter cause.

I don't think it necessary for me to lengthen this paper by giving a description of the different symptoms said to be produced by smut and ergot. Suffice it to say that, in my opinion the same feed may produce one or all the symptoms seen in ergot poisoning, such as convulsive and anasthesia; gangrene, dry or moist, causing sloughing of the hoofs; diseased condition of the mouth and tongue; twitching of the muscles, etc.

I will now proceed to give you, as well as I can, a brief history of the first cases that came under my notice.

It was during the month of December, 1888, that a gentleman named Waddley came to my office and reported that a number of his cattle in a dairy of thirty cows were suffering from swollen legs and very lame. He had noticed nothing unusual until about 1 o'clock the day before, when he let them out to water. Then he discovered that one cow was quite lame and that one of her hind legs was swollen badly. He thought little of it, supposing the animal had hurt itself in some way. But about 3 o'clock the same afternoon, when he went to the stable he found two others in the same condition. The following morning he found five others in the same condition, making eight in all. He wanted me to go and see

them. So as soon as convenient I drove out to his farm, a few miles from the city, and found them about as he had described. They were swollen quite badly, some on the hind legs, some forward and some on both. The swelling extended about half way to the hock on the hind legs and to the knee forward, and in one instance above the knee, some much worse than others. Two were so sore that for the first two or three days they were unable to stand except for a few minutes at a time, and even after that they were lying down much of the time. Most of the time they would lie on their sides, evidently suffering considerable pain. The other prominent symptoms were; twitching of the muscles, drawing up of the feet, breathing a little faster than is natural, temperature slightly below normal, pulse weak and slow, slight diarrhoea, appetite good except in the three worst cases, these latter not eating their usual allowance the first three or four days.

Never having seen any cases that resembled these, I investigated as to the possibility of their being frost-bitten, but soon concluded that nothing of that kind had occurred. I asked Mr. Waddley to come to the city again, as I did not have the necessary medicines. After perusing what literature I could find on the subject, which seemed to be quite limited, became quite positive and diagnosed it as ergotism.

In about a week and a half sores began to appear around the ankles and knees of two of the animals, and a week later quite large portions of flesh had sloughed off around the ankle and knees, and one had sloughed its hoof. The hoof was sloughed without any suppuration. A few days after the hoof had sloughed I made another visit and found indications of a new growth of horn. At this time I learned that the second animal, in getting up, had broken over at the ankle and was standing on the inferior end of the metacarpal bone. The third one had the appearance of a frozen foot, half way to the hoof, perfectly dry and dead up to a certain point and perfectly healthy above, with the exception of a slight swelling near the line of demarkation. The animals at this time appeared to be perfectly healthy except as to the symptoms

above described, with good appetites and bright appearance. Had I considered that it would have been profitable to the owner, I could have amputated, I think, with success. But not considering it so, I ordered the three worst cases destroyed. The remaining five, although swollen badly, some much worse than others, gradually recovered and in the course of a few weeks resumed their natural appearance, and thrived well during the remainder of the winter. But about two weeks after they were turned out to grass in the spring four of the five had another attack, and in September of the same year the fifth was seized with the trouble again. After limping around five or six weeks they all gradually recovered, without treatment except a change of pasture.

The remainder of the herd, although fed and used the same in every particular, did not show any signs of the disease.

There is but one way that I can account for the second attack. In the summer previous there was much rain, and hay did not cure well. The grass was not pastured down close, and as the new grass came up through the old stalks, the following spring the cattle were obliged to eat a good deal of the old dry stalks which, I think, contained the ergot that caused the second attack. Why eight cattle were affected in a herd of thirty, all fed and cared for equally, and the remaining five the second time, I am unable to say, but I hope some gentleman present will be able to give us some information on the subject.

In the way of treatment, I ordered a change of feed, and gave each cow an oleaginous cathartic. To some of the worst I gave stimulants, such as nitrous ether, adding occasionally a little tincture of opium and chloral to quiet the pain. I ordered the affected legs fomented with warm water three times daily and well rubbed with a mild, stimulating liniment, keeping the legs warm. I gave such local treatment as the cases required.

Such, gentlemen, are the facts, imperfectly presented, which have come to my knowledge in connection with this subject. As I stated at the outset, I do not pretend to be able to teach this Society anything. I am here to learn, and I hope

that this paper may excite sufficient discussion to repay you for listening to it, by the information we can gain from those who have had more experience than I have had in regard to the disease referred to.

VETERINARY EXAMINATION AS TO SOUNDNESS OF HORSES.

By DR. A. DRINKWATER, V.S., Rochester.

(A Paper read before the New York State Veterinary Society.)

Colonel Thompson, of Boston, now deceased, was a man of rare tact and ability, and by no means devoid of wit, in his profession as an auctioneer. On one occasion, while engaged in the sale of a horse, he was abruptly interrupted by a Mr. A., who, with a nasal sound characteristic of him, inquired if the horse was sound. The reply was, "Yes." While the sale was progressing and another half hundred was being tried for by the man of the hammer, the same Mr. A. burst out again with: "Colonel, do I understand you to say that this horse is perfectly sound?" The Colonel paused, and drew up his portly frame to its full measure; then looking Mr. A. full in the face, thus addressed him: "Mr. A., if a man should ask me if Mr. A. is a gentleman my answer would be, 'Yes;' but if he should ask me if he is a perfect gentleman—half, am I offered another half?" This instance of professional wit serves as a text which will find application throughout the world when horses are bought and sold, and when the veterinary surgeon is expected to give an absolute guarantee regarding the soundness of an animal.

When medical experts are called upon to examine a man who is a candidate for life insurance, he is expected to answer an almost unlimited number of questions, not only relative to his own condition, physiologically, both past and present, but that of his ancestors as well. The strictest inquiries are made to determine whether there was the slightest prospect of his being afflicted, under favorable circumstances, with any hereditary taint, even back as far as the seventh generation. "The sins of the father," etc., is a proverb even in the eyes

of insurance men, and for the reason apparent that personal soundness does not enter so much in their calculations as the diseases which carried off their fathers and grandfathers before them.

A veterinary surgeon cannot hold conversation with a horse with reference to his lineage. There is only one instance on record of a quadruped being able to speak, and that was Baalam's ass; and even in that marvelous case Baalam, according to the best authority, was not a veterinary surgeon. Yet the greatest ass since Baalam's, I think, is the veterinary surgeon who is willing to give an affidavit to the perfect soundness of a horse. This may seem a harsh statement, and yet I believe in its absolute truth. Physically considered, the horse exhibits as complex and as high a degree of organization as does a man. The heart, the lungs, the nerves, the muscles, the tissues, the glands, the bony structure, the hoof—all are adapted in his structure as means to an end as complex in their relations, as susceptible, comparatively, to disease by accident, neglect or heredity as the human being. Hence there enters into the question of his absolute soundness so many extraordinary contingencies that only the broad principles of pathology can be depended upon as a gauge of his condition at the time of examination. Among the most important as well as profitable duties of the veterinary surgeon is the examination of horses as to purchase-soundness, the latter meaning entire freedom from internal or external disease or indication of any character likely to impair his future usefulness. Many "horsey" men outside the profession, with an off-hand assumption of ability to read a horse as they would read a book, will give the animal a cursory examination of half an hour, and then with a few brilliant observations pronounce on an animal's condition with an assurance that absolutely dumbfounds a regular practitioner. Even among the latter it is a fact that wide divergence of views are often given about an animal, and it is this which has brought some discredit on a profession which absolutely demands more careful analysis, good judgment, fine intention and pathological information than is required from his brother doctor who has mankind for

a patient. To strike the golden mean of a certificate regarding the comparative soundness or unsoundness of an animal is a subject which I think of importance, and which could be profitably discussed at this meeting. Mistakes and oversights may happen to the most skillful in making an examination, no matter how thorough and exhaustive it may be from every standpoint, and by every scientific test known to the profession; and back of all this comes in the matter of undeveloped hereditary disease, and which, under certain circumstances, may appear a dozen hours after the examination pronounced favorable, and yet which may end fatally or permanently impair the usefulness of the animal. It is therefore asking a great deal of the veterinary surgeon to give an unqualified certificate of soundness for any animal. As you well know, horses are subject to periodical diseases, which are not apparent at a diagnosis unless the animal is suffering from them at the time of the examination. How can we determine by any known method, as to latent staggers, ophthalmia, rheumatism, internal tumors of various kinds and many other diseases which are liable to occur, under the right circumstances, at any time, like periodic lameness, partial luxation of the patella, or navicular arthritis. A horse may be suffering from the latter disease for quite a period without exhibiting a sign of lameness. I have seen horses which were driven every day for months without showing lameness or fever, and yet in the stable would continually keep shifting the foot from one position to another indicating pain therein, and which after a time developed into an unmistakable case of navicular arthritis. Yet a careful examination by a veterinary surgeon in the early stages of this trouble would not have developed any information of its existence. Periodic ophthalmia is also another very common disease impossible to detect unless the animal has had more than one attack. It leaves no trace behind which science can detect unless, as I have said, the affection is chronic. Yet this disease of the eye is almost certain to eventually ruin the sight, entirely or partly. Again, horses will have periodic attacks of colic from various causes and get over them without leaving a trace which the veterinary

surgeon can discern. The latter will pronounce the animal, in his opinion, entirely sound, and yet within twenty-four hours the animal may be a resident of horse heaven. I have known horses to have these spells of sickness every few days for a year and in one case for four years, and finally get well entirely. One case came under my observation a few years ago during the holding of the State Fair at Rochester. I was called to attend a very valuable stallion, aged two years. He was suffering considerable pain from what was evidently a case of acute indigestion. Remedies were administered, and in the morning the colt was apparently as well as ever. Before a week had gone by he was similarly attacked, and the same treatment was given, with the same beneficial effect as before. I inquired of the owner if he was liable to these attacks, and was told he had them quite frequently. I prescribed for the same stallion for the same trouble perhaps forty times. Every few weeks from the time he was two years old until he was six, at which age he died, he was affected with the trouble noted. I was called to attend him on his last attack, but he was dead before I reached the farm. I performed an autopsy on him and found a large pear-shaped body attached to the villous coat of the stomach. This tumor, which was of a fibrous nature and about a pound's weight, had a cyst in the center which, upon cutting into, I found contained about a tablespoonful of thick cheesy pus. Unquestionably this tumor was the cause of the animal's frequent painful attacks and his ultimate death. For four years he was used in the stud and was apparently sound, and yet he had, perhaps from his birth, a blemish that proved fatal and which no examination by any surgeon could have disclosed without cutting him open with a knife, a process which horse owners are not likely to sanction in order to get a certificate of unquestioned soundness.

I instance, in a general way, these points to bring out some discussion regarding the best form of a certificate to be made by a veterinary surgeon. I think that the Association should adopt some form which could be generally used, which would be conservative, and yet as definite as circumstances would

permit. Prof. Fleming says, in a late number of the *London Veterinary Journal*, discussing this topic, "That the question of unsoundness, and especially hereditary unsoundness, is one that demands serious consideration by the veterinary surgeons, and an examination of the subject appears to be absolutely necessary in order to ascertain how many of the ideas pertaining to it rests on tradition or fancy and not on substantial facts. It is well to get rid of sentiment and theory when dealing with a matter that involves such large and serious interests as those connected with horse production and utilization."

Truer words than these were never written, and I trust it will be the pleasure of this Association to express its sentiment regarding them.

"No hoof, no horse" is an old aphorism. In modern times there are a thousand ailments which go to say to many a horse-owner, "No so and so, no horse." But the science of veterinary surgery is keeping pace with that designed for the curing of human ills. It is true that we have got no Koch lymph for instantaneously paralyzing those equine bacteria known as botts, but through the noble efforts of our profession we have rendered ease to dumb animals, preserved their lives to a career of usefulness, and improved man's most faithful friend, so that in the time to come he will be like Shakespeare's horse so faithfully described in *Venus and Adonis*:

Round hoof, short jointed, fetlocks shag and long,
Round breast, full eye, small head and nostrils wide,
High crest, short ears, straight legs, and passing strong,
Thin mane, thick tail, broad buttock, tender hide,
Look what a horse should have he did not lack
Save a proud rider on so proud a back.

REPORTS OF CASES.

RUPTURE OF THE STOMACH IN THE HORSE.

By J. A. JOHNSON, D.V.M., ODEBOLT, IOWA.

Having had two cases of rupture of the stomach quite recently, and being unable to discover anything in the literature at my command touching the cases, I will report them with a view of eliciting an answer to the query.

The first case was brought to my infirmary early in the fall of '90 with the following history: Mare had been ailing for ten days or two weeks, as evidenced by her losing flesh and a capricious appetite; but the symptoms were not severe enough to cause the owner any uneasiness.

Ate regular feed in the morning; was hitched to a wagon and driven about one-eighth of a mile to a neighbor's where the owner was to get a load of hogs to bring to town; while loading the hogs the owner noticed that the mare was a little uneasy, but not considering it serious he started with a light load, and on arriving in town at once drove to my infirmary. This was about 10 A. M. The team was unhitched and the mare turned into a box stall, where she presented the following symptoms: Body covered with perspiration, ears drooping, pulse at the jaw imperceptible, respiration labored, anxious expression about the face, legs and ears cold; shortly threw herself, rolled a few times, then rose to her feet.

Now gave her a drench composed of alcohol, sulph. ether aa, oz. iss; this seemed to cause her some pain. Then gave morph. sulph. gr. 5, hypodermically, but obtained no relief; in about one-half hour gave another drench of the alcohol and ether as above; this time it caused decided uneasiness.

After having two or three spasms she became easy (about 11 A. M.) the sweat began to dry up and rigors set in; stood with feet sprawled out so as to brace herself; very slight tympanitis; no eructation of gas or regurgitation with the exception of two very slight and ineffectual attempts to vomit about 12:15 P. M.

The treatment meanwhile consisted of stimulants, alcohol, alternated with soda bicarb.

About 2 o'clock the pulse became quite strong, the eyes brightened and the animal appeared to be gaining strength.

I went into the office about 2:45 quite encouraged, notwithstanding that the tympanitis was slightly increased; had not been in the office but a few minutes when I heard a noise, and on going to the door saw the mare stagger and fall dead.

She was immediately drawn to a field about 100 rods dis-

tant where necroscopy was held, which revealed the following lesion: All organs healthy with the exception of the stomach, which presented a rupture about twelve inches in length on the convex face. The organ was apparently turned about half inside out, with what had been its contents loose in the abdominal cavity.

But what particularly attracted my attention was the nature of the rupture in the outer coat, which was about one inch longer at either end than that in the inner coat, thus making the rupture in the outer coat between two and three inches longer than that in the inner coats.

About two inches at one and one and a half inches at the other end of the rupture in the outer coat was a fresh tear, the remaining portion being an old rupture, in which the margins were indurated and inflamed, presenting a slight gangrenosis. The inner coat was healthy and the margins of the rupture in it were fresh.

In the evening of the 12th instant I was called to attend a case three miles in the country. On arriving there at 8 P. M. found the case presenting the following symptoms: Pulse imperceptible at the jaw, temperature $100\frac{1}{4}$ F., standing with the feet spread so as to brace the body. The following history was given: Had been worked up to about 2 P. M. hauling corn—light loads—when he was put into the stable and allowed to stand a short time, then receiving a light feed of corn and oats.

On the owner's return to hitch up he found the horse pawing; the harness being removed the horse immediately laid down and rested quietly for a few minutes, then rose to his feet. This was repeated several times during the afternoon.

Shortly after he was first taken sick he began to perspire very freely about the head and gradually it extended backward and was so profuse that the water dropped from the body.

About this time he vomited twice, quite a quantity of the ingesta escaping each time, after which the perspiration gradually ceased.

Between 6 and 7 o'clock he was taken with severe rigor. Then I was sent for and found him as above described.

His strength rapidly failed, and shortly after I arrived he began to get stiff and was ordered to be taken out of the barn.

After some difficulty, owing to his being so stiff, he was taken out, but only got about fifty feet from the door when he sank down in the snow and expired with scarcely a struggle.

Necroscopy was immediately held which revealed the same pathological lesion as was observed in case No. 1.

The rupture was only about ten inches long in the last case, but was about one inch longer at each end in the outer coat than it was in the inner coats, and at each end it was a fresh tear, while in the middle it presented the same lesion as did case No. 1, *i. e.* the thickened and inflamed margins showing that there was an old rupture of some days standing.

The organ (stomach) showed no signs of inflation except just along the margins of the rupture in the outer coat.

This was the first attack of sickness that the horse had ever had, so far as the owner knew.

As to the ætiology of this old rupture in the external coat I am at a loss, and hope that some pathologist will explain the subject through the columns of the REVIEW.

I have had several cases of rupture of the stomach in the horse, but these two are the only ones that presented this peculiar pathological lesion.

In the first case, that the rupture had existed in the external coat for ten days or two weeks was evidenced by the animal's condition; while in the second there was no indication of its existence, the animal was apparently healthy to within a few hours of its death, yet the outer coat had evidently been ruptured, about five inches in length, for a number of days.

LITHOTOMY.

By A. D. GALBRAITH, D.V.S., Greensburg, Ind.

I submit the following from notes taken at the time. A black gelding seven years old was brought to my hospital April 19, 1886, with the history that he had trouble in micturating, and occasionally passed bloody urine, and that his trouble had been increasing for several months.

The horse presented a very unthrifty appearance—shaggy coat of hair, impaired appetite, feeble circulation, and he was very dull and emaciated. I made a rectal examination and found a large calculi in the bladder. The case was explained to the owner, who consented to the operation, lithotomy.

The horse was prepared by feeding a laxative diet forty-eight hours, then his feed was omitted ten or twelve hours, and then an ounce ball of chloral-hydrate was given and the horse secured in the stocks for the operation. The perineum was then thoroughly washed, first with soap and water, then with a solution of bichloride of mercury 1-1000.

The catheter was passed into the bladder, and an incision made upon it at the perineum so as to freely expose the interior of the urethra; the catheter was then removed and the lithotomy forceps introduced through the wound into the bladder, and with the left hand in the rectum the stone was guided into the forceps and gently removed. It was large as a hen's egg and weighed three ounces.

The bladder was washed out with tepid water, and the lips of the wound kept together by sutures, and the parts dressed antiseptically with solution of bichloride of mercury 1-1000.

A large soft sponge was tied on the wound and kept saturated with the solution for six or eight days.

The parts healed rapidly, and very little urine escaped through the wound. On the second day his temperature rose to 102°, but was normal by the fifth day.

There was but little swelling. The horse did not miss a feed after the operation, and was ready for his work in three weeks.

I saw him about three months after and he was in fine condition, fat and sleek.

ABDOMINAL ABSCESS.

By G. TOWNE, D.V.S. Thompson, Conn.

The patient was a sorrel mare, fifteen hands high, about 12 years of age, weighing about 950 lbs., and used for drawing

purposes. I was called to see her August 30, at 8 o'clock P. M.

The history of the case was that she had been in the stable during the day and in the afternoon seemed quite uneasy, and pawing, particularly with the right anterior extremity, and refusing part of her food. This was all that I could obtain at this visit.

Upon examination I found the pulse and respiration accelerated, temp. 104° F. The general appearance was that of a long, rough and staring coat, cutaneous surface quite warm, extreme sensitiveness was observed by spinal pressure at the lumbar region, the visible mucous membranes were somewhat injected, urine and fæces of febrile character. I was informed later that she had not been in the best of health for some time, and that she was supposed to be pregnant, and that the period of pregnancy was expiring, yet I found this not to be the case on my first examination.

Occasionally she was disposed to an intermittent fever, and I prescribed accordingly the usually applied remedies.

In the course of three or four days the patient became convalescent, although a partial anorexia remained. She was allowed the liberty of the field by day and removed to the stable at night.

Her progression seemed to be quite satisfactory until the 25th of September, when she became decidedly worse, being quite debilitated and showed marked symptoms of anæmia, which continued to gradually increase in spite of therapeutic agents. During the time from September 26th to October 18th her spine curved to the left so far that it was three inches from its proper position.

The left flank appeared quite prominent, while the right was quite normal, with no perceptible sensitiveness on pressure. I had made rectal examinations from time to time, but could detect nothing abnormal except some displacement of viscera, until the present time, (October 20th), when I detected in the region of the right flank, though quite anteriorly, a large, oval, immovable object, which I diagnosed as a tumor, the nature of which I could not ascertain as yet.

The patient became very weak, taking no nourishment

but stimulants, viz: whiskey, eggs and milk, and inclined to remain standing. The pulse became soft and weak, respiration normal, temperature $98\frac{1}{2}^{\circ}$ F. At this time a dropsical swelling appeared at the point of the xyphoid cartilage, and in the course of a day or two in the region of the right flank there appeared another dropsical swelling, which continued to enlarge and in a short time the whole abdomen was augmented in size.

Hot fomentations were applied to the right flank and the tumor soon became doughy, pitting on pressure. On October 24th, concluding that a process of suppuration was the cause of all the trouble, I explored it with a small trocar and canula, and obtained a little pus, so I punctured the abscess with a heated cauter iron, which relieved the patient of four quarts of very foetid pus.

The cavity was washed out and cleansed antiseptically.

I prescribed a stimulating draught and left the patient for the night.

Besides the usual treatment for such wounds I prescribed three times daily for ten days the following:

℞ Tinct. Ferri Chloride ℥ iss.
Quiniæ Sulph., grs. xx.
Aqua, O.

The profuse œdema of the pectoral, abdominal and inguinal regions were very readily resolved. The cavity continued to discharge for some time, yet the healing process was slow but progressive and it finally healed.

By good nursing and grooming she recovered from her badly emaciated condition and from her debility; on January 1, '91, was apparently recovered; her spine had become normal again; it had been caused to curve by the enormous tumor pressing the viscera to the left side by contraction of the muscles of the right side.

I believe it the largest I ever saw in my limited experience and its internal wall was only the transverse muscle of the abdomen.

EXTENSIVE ARTICULAR WOUND TREATED SUCCESSFULLY
BY ANTISEPTIC DRESSINGS.*

In looking over the September number of your most welcome visitor, the AMERICAN VETERINARY REVIEW, on page 313 an article on Antiseptic Treatment, by Dr. Labaw, interested me very much, and as I have had some little experience with wounds of various kinds, I thought perhaps the following might be of interest to the profession.

On Sunday, August 31st, I was called to see a sorrel mare, nine years old, that had by some means got her right front foot over a saw-toothed-barbed wire in the fence. The wire had cut through the skin at the inferior third of the ossuffraginis, partially encircling the pastern joint, cutting downward until the coronary band was completely severed at the inner quarter of the hoof; a branch of the perforans tendon was also severed. In fact it was a most formidable-looking sight. The joint was opened and the blood flowing freely from both vein and artery. I took up the artery and ligated it with silk, and the vein by torsion, and dressed with aqua corrosive 1-1000; then laid on a quantity of absorbent cotton, over which a light bandage was applied. The next day I sent the ambulance for the mare and brought her to my infirmary. I then removed the dressing, being very careful to disturb the wound as little as possible, and dressed it with tinct. myrrh $\frac{3}{ij}$, creosote $\frac{3}{j}$, mixed and poured into the wound, applying the cotton and bandage as before. I used this dressing three times, applying it once every other day; then changed to white lotion once a day for a week, removing the cotton only every other day. At this time, with only twelve days treatment, the synovial discharge had entirely ceased and with it I ceased bandaging, and have since dressed the wound once a day with white lotion and powdered boracic acid alternately, being very careful not to remove any scabs from the edges of the wound or irritate it in any way while applying the medicine; and to-day, just twenty-two days since she was hurt, the animal is ready for work, apparently as

* This was sent to us without the name of the author.—Ed.

good as ever, the wound having entirely healed except a slight external portion of the skin, which is a little "raw" as it is commonly termed. I have used myrrh and creosote quite extensively in opened joints, and always with the best results. And another thing I have observed, is that too much washing and scrubbing of lacerated, and in fact all wounds, is worse than not enough.

After the first dressing, this wound has never had what you might call a good washing with soap and warm water, as is the common practice. Of course the surrounding parts are to be kept clean and well oiled.

KNOTTED GUT IN A HORSE.

By R. T. WHITTLESEY, D.V.S., Los Angeles, Cal.

The following case will be interesting more from its rarity and the aid it may be to future diagnosis than to any relief that may be rendered the patient.

The subject, a brown gelding six years old, and one of a fast road-team, was taken sick about 2 P.M., Dec. 22d. As the owner was hitching them up, this animal showed symptoms of pain by squatting and looking at his flank. The owner started for his ranch five miles away, and thinking it a touch of colic that would pass off with exercise, drove out about a mile, and stopped when the horse again showed pain; he was then taken back to the stable, unhitched, and turned into a small lot, where he rolled from side to side and looked at his flank, the right generally and well under. He would only stand for a few seconds, and the pain seemed to increase on standing. During the afternoon he was given three ounces of nitrous ether and a soap-suds enema.

I saw him first about 7 P.M. He was then acting about as he had all the afternoon, in almost constant but not very violent pain, hair wet from perspiration, nose and ears warm but the pulse very weak.

I suspected impaction, as he was short of work and fed principally on hay.

I administered an aloes ball and three-fourths of a grain of

eserine, repeating the eserine in about forty minutes. There was no evacuation of the bowels, nor did I much expect one; but I did expect that as the influence of the drug wore off, the horse would quiet down and be out of pain for the night. In this I was disappointed; although the pain lessened it never left him. An examination per rectum revealed nothing but a most violent contraction of that organ upon my hand.

About 10 P.M. I gave a hypodermic of five grains of morphine; it seemed to stupify him; he lay on his sternum, eyes partially closed, head waving slowly from side to side, and every little while looking at his flank.

I was uneasy about him and would have stayed through the night, but the owner said there was no use sitting there watching a horse sleep, that he would keep until morning; and took the lantern and started.

About 5.30 A.M. I received a telephone from the owner that the horse had pawed and rolled all night but was now standing up: had offered him water, which he refused.

I made up my mind then that there was an intestinal calculus, intussusception, gut-tie, or something of like nature, and I decided to make an examination per rectum, and if I could discover anything definite enough to warrant it, to attempt a surgical operation, by way of the inguinal canal, as I do for a ridgling, only making a much larger opening. But when I came to make an examination, although I thought I could feel what seemed a knot of the small intestines well to the right flank, it was too indefinite to warrant an operation.

However, I administered two grains of eserine, thinking that by the violent peristaltic effort it might be moved: but it not only failed in this but did not seem to distress the horse nearly as much as I have seen half the quantity do before, which I think due to the inflamed condition of intestines and lack of nervous sensibility.

I found his temperature to be 104° when I came in the morning, pulse almost imperceptible, membranes congested, but not a great deal of ecchymosis, and quivering of the muscles all over the body.

I told the owner I did not think the horse could possibly live. He said the horse was valuable and he wanted to do all he could, and suggested having counsel; which suited me perfectly.

When the veterinarian arrived I gave him the history, treatment, and what I believed was the trouble.

After an examination he differed with me, thinking it a case of impaction with paralysis, and suggested a favorite prescription, which was given.

The animal died at about 2 P.M., almost without a struggle; and at no time during his sickness did he show near the pain I have seen in spasmodic colic, and none of that delirious thrashing and pounding of the head so common in enteritis, but acted and died very similar to cases of strangulated hernia which I have seen in stallions, excepting that he did not sit up on his haunches.

And here I want to ask any member of the profession if they have ever seen a case of inguinal hernia in a gelding, strangulated or otherwise.

The post-mortem revealed a large tear in the mesentery which I think may have been there some time, and as complete a single bow-knot as can be imagined, tied about the middle of the small intestines.

COLLEGE NEWS.

BALTIMORE VETERINARY COLLEGE.

Having, in consequence of erroneous information, reported (in our January number), the closing of this institution, we take pleasure in correcting the misstatement thus inadvertently made. We learn, by a letter from D. H. Biedler, the Secretary of the Board of Directors of the Baltimore University, that Dr. G. A. Faville has resigned on account of his Government duties, and that Dr. A. Hassell, M.R. C.V.S., has been appointed to succeed him. Professor Ward still holds the Presidency of the College.

AMERICAN VETERINARY COLLEGE.

After a successful year this institution closed the labors of the sixteenth regular session with the usual commencement exercises at Chickering Hall, on the 18th of March. The arrangements and preparations on this occasion surpassed in every particular those of any previous year, and the various committees in charge of the management are entitled to no little credit for the success and the attendant enjoyment and interest of the evening.

The following named gentlemen received the degree of (D.V.S.) Doctor of Veterinary Surgery:

GRADUATES.

Ackerman, Edwin Braden.....	Brooklyn, N. Y.
Bachman, Edgar Daniel.....	Easton, Pa.
Bishop, E. Lyman M.....	Brooklyn, N. Y.
Busener, Oscar Emil.....	New York City.
Buckley, John Matthews.....	New York City.
Burby, Joseph William.....	Holyoke, Mass.
Burchsted, George Brinton	Providence, R. I.
Cawley, Amos Oliver.....	Lewisburgh, Pa.
Choate, Horace Henry.....	Windsor, Me.
Conover, Jonathan H.....	Copper Hill, N. J.
Connolly, Edward.....	New York City.
Deckard, Israel Kline.....	Middletown, Pa.
Delaney, James Edward.....	New York City.
Doughty, David Brush.....	Woodbury, L. I.
Dunn, Ralph Alexander.....	Titusville, Pa.
Elliott, Clement V.....	Vincennes, Ind.
Fenimore, Henry Deacon.....	Rancocas, N. J.
Gearhart, Daniel Cameron.....	Lewisburgh, Pa.
Goubeaud, George Joseph.....	Brooklyn, N. Y.
Harvey, Frank.....	Durham, N. C.
Hess, Anton Philip.....	Wheeling, W. Va.
Hewitt, Fred. Sterling.....	Meshoppen, Pa.
Hurlbert, Russell Chancey.....	Ava, N. Y.
Kenney, John Andrew.....	New York City.
Kock, Hermann.....	Brooklyn, N. Y.
Kroos, William Albert.....	Brooklyn, N. Y.
Lowe, John Payne, Jr.....	Paterson, N. J.
McDonough, James.....	Montclair, N. J.
Meehan, John Joseph.....	New York City.
Meyer, George William.....	New York City.
Murphy, Wilbur John.....	New York City.

Nesbitt, Edward James.....	Poughkeepsie, N. Y.
Odell, Edgar.....	New York City.
Palmer, Lewis Irving.....	West Bloomfield, N. Y.
Phyfe, Walter Hutson.....	Delhi, N. Y.
Smith, William Erwin.....	Sedalia, Mo.
Stout, Edgar Newton.....	Greensburg, Ind.
Thomas, Reginald.....	Decorah, Iowa.
Turner, La Forest Everette.....	Rockville Center, L. I.
Van Sieten, Abraham Ditmars.....	Jamacia, L. I.

The prizes were delivered by Professor Doremus to the successful contestants, as follows :

EDWARD JAMES NESBITT, D.V.S., received the first prize, that of the Board of Trustees for the best general examination.

REGINALD THOMAS, D.V.S., secured the Alumni prize for the second best general examination.

FRANK HARVEY, D.V.S., obtained the Faculty prize for the best practical examination.

WALTER HUTSON PHYFE, D.V.S., was adjudged the College Medical Association prize for the best paper presented and discussed at a meeting of the Association.

For the first time since the organization of the college there was no competition for the Anatomical prize.

Mr. Orminston received the Silver Medal for the best examination in anatomy in the junior class.

VETERINARY LEGISLATION.

AN ACT TO ESTABLISH A STATE BOARD OF EXAMINERS AND TO REGULATE THE PRACTICE OF VETERINARY MEDICINE AND SURGERY THROUGHOUT THE STATE OF NEW YORK.

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

Section 1. Within sixty days after the passage of this act, the Governor of the State shall appoint seven veterinarians, each of whom shall hold a certificate of graduation from an incorporated veterinary college or university, to be selected from a number not exceeding fourteen (14) as follows :

Seven nominated by the New York State Veterinary Medical Society, and seven by the Long Island Veterinary Medical Society, and their successors shall be appointed in like manner.

§ 2. Each member shall take and file the constitutional oath of office required of public officers.

§ 3. The said members of said Board shall meet on the second Tuesday of July in the year 1891, in the city of Syracuse for organization. The hour and place of meeting to be designated by the Secretary of the State Society, at which time they shall elect a president, secretary and treasurer, and may adopt such rules and regulations not inconsistent with law as they may deem necessary.

§ 4. Each member of said Board shall hold office during good behavior and may be removed by the Governor for misconduct or incompetency upon reasonable notice of charges made against him and an opportunity to be heard. But no member shall hold office after he is sixty-five years of age, and the term of office of any member shall expire upon his reaching that age.

§ 5. It shall be the duty of said Board to examine any person over twenty-one years of age and a resident of this State applying for licenses under this act, provided that said applicant shall first show to the satisfaction of said Board that he has practiced veterinary medicine and surgery for a period of not less than ten years or that said applicant holds a diploma or certificate of practice from an incorporated veterinary college or university, or from the Agricultural Department of Cornell University, after at least two years of continuous study thereat, and shall have duly paid to the treasurer of said Board all fees hereinafter prescribed.

§ 6. Said Board shall keep a record of all persons licensed by them to practice veterinary medicine and surgery, and shall file with the Secretary of State and with the Secretary of the New York State Veterinary Medical Society, on or before the first day of July of each year, a detailed report of the proceedings of said Board, together with a statement of all their receipts and disbursements.

The members of said Board shall hold at least one meeting each year for the examination of applicants and as many other meetings as they may deem requisite. The first meeting of the said Board shall be held on the first Tuesday of May in the city of Syracuse, of which proper and timely notice shall be given through the veterinary journals of the State.

ARTICLE 5. Five members of said Board shall constitute a quorum, and the concurring vote of a majority of the members present at a meeting at which there is a quorum shall be deemed the decision of the Board.

ART. 6. Every applicant for a license shall upon making his application pay to the Board of Examiners the sum of twenty dollars, and on receiving his certificate the further sum of five dollars. In case of failure at any such examination the applicant after the expiration of six months and within one year shall have the privilege of a second examination by the Board or by a committee of one or more of the Board without the payment of an additional application fee.

ART. 7. From the income provided by this Act the expenses of the examiners shall be paid. Any surplus after all proper expenses incurred by the Board shall have been met, if any surplus shall remain, shall be apportioned among said examiners pro rata, as compensation for their services.

After July 1st, 1891, every person now practicing veterinary medicine and surgery in this State by virtue of Chapter 313 of the Laws of 1886, who does not hold a certificate of graduation from some incorporated veterinary college or university or the Agricultural Department of Cornell University shall assume the title of "Farrier" until he shall obtain a certificate of graduation from an incorporated veterinary college or the Agricultural Department of Cornell University or a license to practice from the State Board of Examiners. And it shall be the duty of the County Clerk to write opposite the title the record of the veterinarians veterinary surgeon or any other like title of the name of every practitioner who has registered under the provisions of Chapter 313 of the Laws of 1886, and who does not before July 1st, 1891, produce a diploma as evidence of his graduation from some incorpora-

ted veterinary college or university the words the title annulled and the title "Farrier" substituted under the provisions of Chapter of the Laws of 1891, inserting the Chapter under this Act.

After July 1st, 1891, it shall be unlawful for any person to practice veterinary medicine and surgery or any branch thereof in this State who are not now legally authorized to practice and those who shall not obtain the certificate of qualification after due examination from said Board of Examiners.

Nothing in this Act shall be construed to prohibit students from prescribing under the supervision of duly authorized preceptors or to prohibit gratuitous services in cases of emergency or to prohibit any legally qualified practitioner, residing on the border of a neighboring State, meeting surgeons of this State in consultation or residing on the border of a neighboring State and duly authorized under the law thereof to practice veterinary medicine and surgery therein whose practice extends into the limits of this State, providing that such practitioners shall not open an office, or appoint a place to meet and treat patients, or receive calls within the limits of the State of New York.

§ 7. Every violation of this act shall be deemed a misdemeanor.

§ 8. This act shall take effect immediately.

This bill was introduced in the Legislature Feb. 26th, by Mr. Peck, of Cortland County.

BIBLIOGRAPHY.

PRINCIPLES OF SURGERY.—By N. SENN, M.D. (F. A. Davis, Publisher).

We have often deplored the lack of means and opportunities for professional improvement under which our American veterinarians labor in consequence of the absence of a sufficiently extensive and comprehensive literature in the English language, like that which pertains to nearly every other profession. For this reason we are frequently compelled to recognize the necessity of culling largely from the various medical publications, both of a permanent and transi-

ent character, which come into our hands, within the purview of our particular guild, and we seldom fail, in doing so, to find many matters of great interest and value, upon nearly every topic involved in veterinary science. An illustration of this is afforded by the new work of which we have received a copy entitled "Senn's Principles of Surgery," which proves to be one of the most interesting of the various works written on the subject to which it is devoted. The work is not only interesting and attractive because of the neatness of its literary execution, but also in respect to the peculiar arrangement of the contained matter.

It opens with the subject of Regeneration, including that of the different tissues, which, with the subject of Inflammation, occupies the first four chapters of the work. The reader is then introduced to the subject of Pathogenic Bacteria, and from that point we are brought to the consideration of the whole range of surgical diseases which are deemed to be of a parasitic nature.

In this place the subjects of necrosis, suppuration, with its various modes of development, septicæmia, pyæmia, erysipelas, tetanus, rabies, tuberculosis, actinomycosis, anthrax and glanders, are severally treated, the text being illustrated by 109 wood cuts. It is not only a book for both the student and the general practitioner, as the author remarks, but the statement may with propriety be amended by making it read: "for the student and general practitioner of *both human and veterinary surgery*,"

DISEASES OF THE SHEEP.—BY JOHN HENRY STEEL, F.R.C.V.S., etc.—Longman, Green & Co., N. Y.

The name of this author has been already so favorably and so often brought before the profession that a new work from his pen is sure to be recognized in advance as a contribution of interest and value, with a confident anticipation of the importance of his facts and the soundness of his conclusions. The present work will, in this respect, form no exception, but will be welcomed by the students of veterinary science in a similar appreciative spirit.

In a notice of this book by another we are told, in a depre-

catory way, as detracting from the practical value of the author's teaching, that they are the instructions of one who has had but little, if any, opportunity of acquiring a sound experience in the domain of ovine pathology.

This may hold good to a certain extent, but it seems to us that this rather enhances than diminishes the usefulness of the work, from the fact that its conclusions are likely to be the result of fresh and original research and laborious personal investigation, rather than that of building on the foundations of others and traveling in a worn and beaten path, and merely following the old footprints.

It cannot be doubted, therefore, that as a companion of Youatt's old, though excellent standard book on sheep, the publication of "Diseases of the Sheep," by Longman, Green & Co. supplies a want much felt by practitioners whose professional opportunities and business appointments demand a special aptitude in the application of their knowledge in this special department of their labor.

In this work the subject is divided into eleven principal chapters, well written and of easy reading, with nearly one hundred illustrations. Every recent modern discovery pertaining to the subject has been carefully collected in the three hundred and fifty pages which compose the volume.

OBITUARY.

JOHN H. STEEL, F.R.C.V.S.—This eminent veterinarian died on the 28th of January at Bombay, India, at the age of thirty five years. He was little less than a victim to his profession, or at least to the special work which he had undertaken to accomplish in and for India, being among the pioneers of veterinary science and education in that country, and he succumbed to a relapse of a disease which ought to have prevented his sojourn in such a climate. His death must prove a serious loss to the profession in India, who had in him an influential friend and able teacher. The profession is indebted to him for numerous and well-known works, among

which may be enumerated those on equine anatomy; on diseases of the elephant and of the camel, and canine and bovine pathology. His last book, on diseases of sheep, has made him known in this country as well as in Europe. He was the editor of the *Quarterly Journal of Veterinary Science* in India, the issue of which, we understand, has ceased since his death.

EDWARD EVERETT ACKERT.

Whereas, it has pleased the Almighty in His divine providence to remove from our midst Edward Everett Ackert, be it

Resolved, That by his death the class of 1891 of the American Veterinary College sustains a loss, which is felt deeply, of one of its brightest and most promising members. Also be it

Resolved, That by his genial and kind disposition he had endeared himself to all, and that we greatly miss him as a dear friend, classmate and colleague. Also be it

Resolved, That a copy of these resolutions be sent to the AMERICAN VETERINARY REVIEW for publication.

GEORGE W. MEYER, }
J. E. DELANY, } Committee.
O. BUSENER, }

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

A special meeting of the Comitia Minora of the United States Veterinary Medical Association was held at the Hotel Royal, New York City, on Jan 27, 1891, at 8 P. M.

Dr. Coates, Chairman, called the meeting to order and the following members responded: Drs. Huidekoper, T. B. Rayner, Coates, R. A. McLean, Winchester, Dougherty, Hoskins, and Robertson. Absent, Drs. Williams, Butler, and Lyford.

Secretary Hoskins then offered the following resolution: That we recommend to the Association that the meeting for 1893 be held at Chicago and that it assumes an international character. After some discussion an amendment was offered and accepted that a committee of three be appointed to propose the subjects for discussion, which was carried.

The place for meeting of 1891 was then considered, the Secretary reading ap-

peals for the cities of Boston, Baltimore, and Washington, with a letter from Dr. Williams, one of the western members of the Committee, and after some discussion a motion was made that we meet in Washington, D. C., which was carried.

A motion was then made that a committee of three be appointed to complete the necessary arrangements, which was adopted, and the Chair announced the names of Dr. Huidekoper, Hoskins, and Dougherty as the committee.

After the adoption of some other routine matters the meeting adjourned.

W. HORACE HOSKINS.

Secretary.

NEW JERSEY STATE VETERINARY SOCIETY.

The semi-annual meeting of the New Jersey State Veterinary Society was held in Saenger Hall, City of Newark, on Thursday, February 5, 1891. Meeting called to order promptly at 2 P. M., the President, Dr. Loblein, occupying the chair.

On roll-call the following number answered to their names: Drs. Auteureith, Corlies, Hopkins, Krowl, Loblein, Lowe, Gacock, Sauter and Sellers.

Minutes of last meeting were read and approved. It was regularly moved and seconded that the application of Dr. Dorney be laid on the table—carried.

Moved and seconded that the Secretary correspond with the Dean of the New York Veterinary College and find whether Dr Otto Von Lang is a graduate of said College—carried. Dr. Hopkins proposed the following veterinarians for membership: Drs. T. H. Ripley, E. R. Ogden, E. C. Batten and W. F. Harrison. The applications were referred to the Board of Censors for action.

Dr. Lowe, on behalf of the United States Veterinary Society, extended to the New Jersey State Veterinary Society an invitation to attend their next meeting to be held in Washington, D. C., September next. On motion the invitation was accepted. On motion the bill presented by the Secretary for printing, postage, etc., was ordered paid. The use of sulphate of strychnia by hypodermic injection in purpura hæmorrhagica was the subject of lengthy remarks by Dr. Hopkins of Newark, the Dr. claiming that in one-eighth grain doses he has had remarkable success. Before using this treatment his percentage of loss was great, but since using strychnia he has cured every case the treatment was used on. The Doctor advocates the hypodermic injection of strychnia in one-eighth grain doses every four hours, injected into the healthy tissue, and combines, as soon as the case will permit, tonics of iron, cinchona, gentian, etc., given by the mouth. He stated that cases that were apparently in the last stages of the disease were completely cured by his treatment; in cases where the disease was just making its appearance, the disease was checked almost immediately. In fact in every case that the treatment was used, the patient improved as soon as the treatment was commenced. Several cases of luxation of the patella due to phim ademtos were reported, causing considerable discussion. The luxation was considered to be due to muscular relaxation. The cases being exceedingly rare the discussion was of great interest.

Dr. Krowl gave the symptoms of a very interesting case of melanosis in a black mare, the Doctor stating the impossibility of making a correct diagnosis,

owing to the fact that the only place of the pigmentary deposits was in the kidneys. The kidneys degenerated, formed an abscess, which broke in the abdominal cavity, causing death.

On motion it was agreed to hold the annual meeting in New Brunswick.

A. T. SELLER, *Secretary*.

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, Boston, Wednesday evening, Jan. 23th, President Thomas Blackwood in the chair.

The Secretary being absent the minutes of the last meeting were not read, and the roll was not called.

Dr. J. M. Skally was elected Secretary *pro tem*.

The following members were present: Drs. Blackwood, Osgood, Marshall, Haddock, Peterson, Emerson, Lee and Skally.

After a general discussion of various topics the meeting adjourned.

The regular meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, Boston, Wednesday evening Feb. 28th, 1891, President Thomas Blackwood in the chair.

Members present: Drs. Becket, Blackwood, Bunker, Emerson, Haddock, Marshall and the Secretary. Visitor, Dr. Wilbert Soule.

Minutes of the two previous meetings—November and January—read and accepted.

The Secretary reported for Dr. Winchester, who was appointed a committee of one to invite Dr. Van Schaick, of the Pasteur Institute of New York, to address the Association upon rabies, that Dr. Van Schaick's time would not permit of his coming to Boston to give such an address at present.

There was no essayist for this meeting, but Dr. Bunker agreed to read a paper before the Association at the March meeting, subject to be announced later.

The members present then took part in a general discussion upon the following topics:

First, the action of the Cattle Commissioners regarding glanders and tuberculosis, and the folly of three laymen, such as the Board is composed of, in considering themselves as experts on animal diseases, and the harm they do the community in setting the opinion of competent veterinarians at naught.

Second, the diagnosis of bovine tuberculosis, especially the difficulty of detecting the disease in its incipency.

Meeting then adjourned.

AUSTIN PETERS, *Secretary*.

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

A call of the graduated veterinarians of the State of Nebraska, by Drs. Wilson and Cosford, to form a veterinary medical association, resulted in a meeting

at the Windsor Hotel, Lincoln, on Tuesday, Jan. 13, 1891. The following veterinarians responded to the call: Drs. Young, Blackwell, Ebbitt and Rammaciotti, of Omaha, Dickey, of Seward, Noble, of Blair, Taylor, of York, Hammond, of Wayne, Everett, of Hastings, Osborne, of Fremont, Frothingham, Lord, Thomas and Cosford, of Lincoln.

Dr. Noble was elected to fill the offices of Temporary Chairman and President for the ensuing year. Dr. Rammaciotti was made Vice-President; Dr. Cosford as Honorary Secretary; Dr. Young, Treasurer; Drs. Ebbitt, Blackwell and Dickey, Board of Trustees. Dr. Young submitted a copy of the New Jersey Veterinarian Association's by-laws and constitution for the consideration of the meeting, which were adopted with several changes. Dr. Burgess, of Beatrice, who has spent one session at college, was admitted on probation, to receive full benefits of the Association as soon as graduated.

A general discussion followed the adoption of constitution and by-laws, and the sense of the meeting resulted as being averse to the admission of any but graduates of legalized veterinary colleges, and to endeavor to obtain legislation in favor of professional veterinarians. The motion of Dr. Dickey that the chair appoint a committee of three to draft a bill to present to the Legislature resulted in the appointment of Drs. Noble, Osborne and Young. A motion was made and seconded that the meeting adjourn to meet at the same time and place on Tuesday, Jan. 20, 1891.

The next regular meeting of the Association will be held at the Merchants Hotel, Omaha, on the second Tuesday in March, 1891.

S. E. COSFORD, V.S., *Secretary*.

The semi-annual meeting of the Nebraska Veterinary Medical Association was held March 10th, in the parlors of the Merchants Hotel, Omaha, Neb. The meeting was called to order by the President, Dr. E. S. Noble, and the following members responded to roll call: Drs. Blackwell, Cosford, Ebbitt, Lord, Noble, Rammaciotti and Young. Guest, Dr. S. Stewart, of Council Bluffs, Ia.

Dr. Wilson, of Lincoln, was elected a member.

Dr. Lord presented a paper on antiseptic surgery, which was well received and thoroughly discussed.

Dr. Young's paper was postponed by request.

Dr. Stewart presented a paper on the use of cannabis indica in colic, which elicited a liberal discussion.

The essayists were tendered a vote of thanks.

On motion, Dr. Stewart was elected an honorary member of the Association.

The President appointed Drs. Young, Taylor and Dickey as essayists for the next meeting, which will be held at Lincoln in September, '91.

A motion prevailed to create a legislative committee, to secure, if possible, the passage of an act to regulate the practice of veterinary medicine and surgery, now pending in the Legislature. The President appointed, as such committee, Drs. Rammaciotti, Lord and Cosford.

After the disposal of routine business the meeting adjourned.

S. E. COSFORD,
Secretary.

WISCONSIN VETERINARY ASSOCIATION.

This society was organized on the 18th of March and met in the rooms of the State Agricultural Society. The following officers were elected :

President, V. T. Atkinson, V.S., Milwaukee; Vice-President, J. L. Scott, V.S., Beaver Dam; Secretary, W. P. Freeman, V.S., New Richmond; Treasurer, C. H. Ormond, V.S., Milwaukee; Censors, J. F. Raub, D.V.S., Monroe; L. R. Baker, V.S., Madison; A. Kurtz, V.S., Appleton.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The usual fortnightly meeting of this Association was held on March 12th, Prof. D. McEachran in the chair.

Prof. Mills reported that the "Reference Handbook of Medical Sciences," consisting of eight volumes, published by Wood & Co., had been received and placed in the library. He also reported that experiments on temperature of dogs, horses and other animals were being made by Drs. Parker, Robertson, McKech-nie, himself and others. Mr. Miller and Mr. Macaulay have been investigating the action of chloroform on horses.

Mr. Simpson read a paper on eversion of the uterus and the methods employed in dealing with these cases. He recommended 1½ ounce doses of chloral hydrate as a calmate. A lively discussion followed on the comparative merits of chloral and opium for this purpose, in which Dr. Mills, C. McEachran and Baker took part. Mr. Comstock referred to two cases of amputation of the uterus on range cattle which had come under his observation in Montana. The chairman also referred to serious cases of eversion in both domestic and range cattle. Dr. Mills recommended Batley's sedative solution in preference to tinct. opium in these cases. Dr. Nelson Walsh referred to a case of eversion in a mare.

Mr. Gorham communicated a case of fissured teat in a cow, a fistula nearly half way up the teat, the result of an injury. He treated it by making a fresh wound, when the cow was not in milk, and stitching it up, resulting in complete closure of the fistulous opening.

Mr. D. McDonald presented a case of laryngitis healed by poultices and saline febrifuge medicines, and Mr. Watson read a paper on premature labor pains in a cow, which led to a discussion on the action on the fetus of drugs administered to the mother for the purpose of quieting the animal and lessening the tendency to straining. The chairman explained that owing to there being no direct circulation of blood between the mother and foetus, the latter was thereby protected from the action of such drugs, whereas, drugs given the mother was directly communicated to the foal after birth and recommended this means of giving medicines. He had seen far better results in foals from drugs so administered. Drs. Mills and Johnston followed by some remarks on the subject.

Mr. St. Louis followed by communicating a case of rheumatic arthritis in a foal, leading to an animated discussion on the pathology of rheumatism. Dr. Johnston related the post-mortem of calves at Munich suffering from this disease.

Mr. McCrank read a paper on azoturia or "hæmoglobinuria," a disease peculiar to idle horses which receive full complement of food without exercise, resulting in a plethoric condition, and when the animal is exercised the muscles

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of the quarters swell, he loses power more or less complete; the urine becomes coffee or porter colored, containing albumen, hæmoglobin, and sometimes blood cells.

Dr. Wyat Johnston presented a specimen sent by Dr. J. M. Parker, of actinomykosis on the left face and superior maxilla of a cow, the peculiar rounded yellow spots caused by the actinomyces. He pointed out the difference between this disease and osteo sarcoma, it being caused by these vegetable spores. That the parasitic fungus often found its way into the bone by the puncturing of the gum by straw or coarse grass stalks. Being most frequent in animals used for food for people, it being communicable to man as well as to other cattle, it is a matter of importance for sanitarians. He also exhibited specimens of pleuro-pneumonia, and specimens of the lungs of Canadian animals suspected of pleuro-pneumonia by inspectors in Great Britain. He explained the differences, which, however, in the hardened specimen are not well marked. Undoubtedly there exist forms of pneumonia in cattle, resulting in pathological changes simulating pleuro-pneumonia so closely as to make it difficult to differentiate between them, and until a micro-organism shall be discovered in pleuro-pneumonia we must rest our opinion principally on the history leading or not to contact of living diseased with living healthy cattle. Dr. McEachran explained that in the fresh section of so-called "Canadian Lung" the alveoli and interlobular spaces were filled by a white waxy exudate, while in pleuro-pneumonia the exudate in these spaces is invariably fluid, and the general condition of the lung dropsical, and in the former there is usually an absence of the necrotic centres and various pathological evidences of progressive inflammation, seen in contagious pleuro-pneumonia.

This closed the last active meeting for the session, which has been an unusually successful one for this Association.

ONTARIO VETERINARY ASSOCIATION.

The Annual Meeting of the Ontario Veterinary Association was held in the Ontario Veterinary College, Toronto, Dec. 19th, 1890.

In consequence of the absence of the President, Mr. D. McIntosh, the Vice-President, Mr. D. Gibb, took the chair, and in opening the meeting made a few appropriate remarks, regretting the absence of the President, who had written expressing sorrow at his not being able to attend.

The following gentlemen were present at the opening of the meeting, several others coming in before its close:

Prof. Smith, Messrs. O'Neil, Quinn, Shaw, J. H. Wilson, J. Wende, Lloyd, Gibb, C. Elliott, McCowan, McArthur, Hand, Steele, Hawkins, Gallanough, W. G. Wilson, Heslop, Hawkins and Sweetapple.

The minutes of the last meeting were read and confirmed; and the Secretary's and Treasurer's reports were then read, showing the finances of the Association to be in a good condition.

Mr. Heslop of Appleby, Ont., and Mr. F. J. Gallanough were duly proposed and elected as members.

Mr. Hawkins of Detroit was elected an honorary member of the Association, and on motion of Prof. Smith, seconded by Mr. John Wende, Dr. Huidekoper,

of Philadelphia, was elected an honorary member. Mr. O'Neil, of London, read an interesting paper on soundness, and a lengthened and animated discussion took place, in which Messrs. Lloyd, Hawkins, Elliott, Wilson, Wende, Shaw and others took part, on the various condition of soundness and unsoundness.

Mr. John Wende read an interesting paper on prolapsus uteri in the bitch, the retention of the uterus being ineffectual. He resorted to laparotomy and fully described the operation for its retention. It was moved and seconded that the thanks of the Association be presented to the readers of papers. Dr. Duncan mentioned instances of nodules on the mesentery produced by parasitic worms. Dr. Hopkins described some instances of furnuculus or gangrene in Detroit, and cases of the same were mentioned as having occurred in Toronto, Buffalo and some other cities. Mr. Gibb mentioned that the disease occurred in Boston in 1857, and had been there treated with pyroligneous acid. Several took part in the discussion of this disease.

Mr. Gibb vacated the chair and Mr. Cowan presided. The election of officers then took place with the following result :

Mr. W. Gibb, St. Mary's, Ont., President; Mr. D. McArthur, Ailsa Craig, Ont., First Vice-President; Mr. J. Wende, Buffalo, N. Y., U. S., Second Vice-President; Mr. C. H. Sweetapple, Toronto, Ont., Secretary; Mr. W. Cowan, Galt, Ont., Treasurer; Messrs. O'Neil and Elliott, Auditors; Messrs. Burns, Hand, W. H. Wilson Steele, Gallanough, Hopkins, Ormsby and Lynch, Directors; Messrs. J. H. Wilson and O'Neil, Delegates to Western Fair Association; Mr. W. Cowan, Delegate to Central Permanent Farmers' Institute. Prof. Smith was elected honorary President.

Mr. Cowan vacated the chair and the President-elect, Mr. Gibb, took his seat. He thanked the gentlemen present for this honorable position in which they had placed him, and promised to do all that lay in his power to forward the best interests of the Association and also for the profession at large and said that he thought it the duty of every qualified practitioner within reach to support the Association by his presence at its meetings.

Messrs. McArthur, Wende and Hawkins also gave short address. Mr. Hawkins spoke in disapproval of qualified practitioners associating themselves in business with empirics. He also mentioned that many prominent positions in the United States were held by graduates of the Ontario Veterinary College, and was greatly in favor of the summer practice required of all students attending the College.

The sum of \$25.00 was voted to be appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the approaching spring examinations.

Mr. Shaw described a case of amputation of a portion of the anterior part of the inferior maxillary bone of a horse and also by request described the operation for roaring.

Dr. Duncan remarked that Prof. Axe disapproved of the operation in consequence of the severity of the cough that supervened. Prof. Smith said that the general opinion amongst veterinary surgeons in Great Britain was not in favor of the operation, but that it might be beneficial in some cases for slow work.

At the close of this discussion the meeting adjourned.